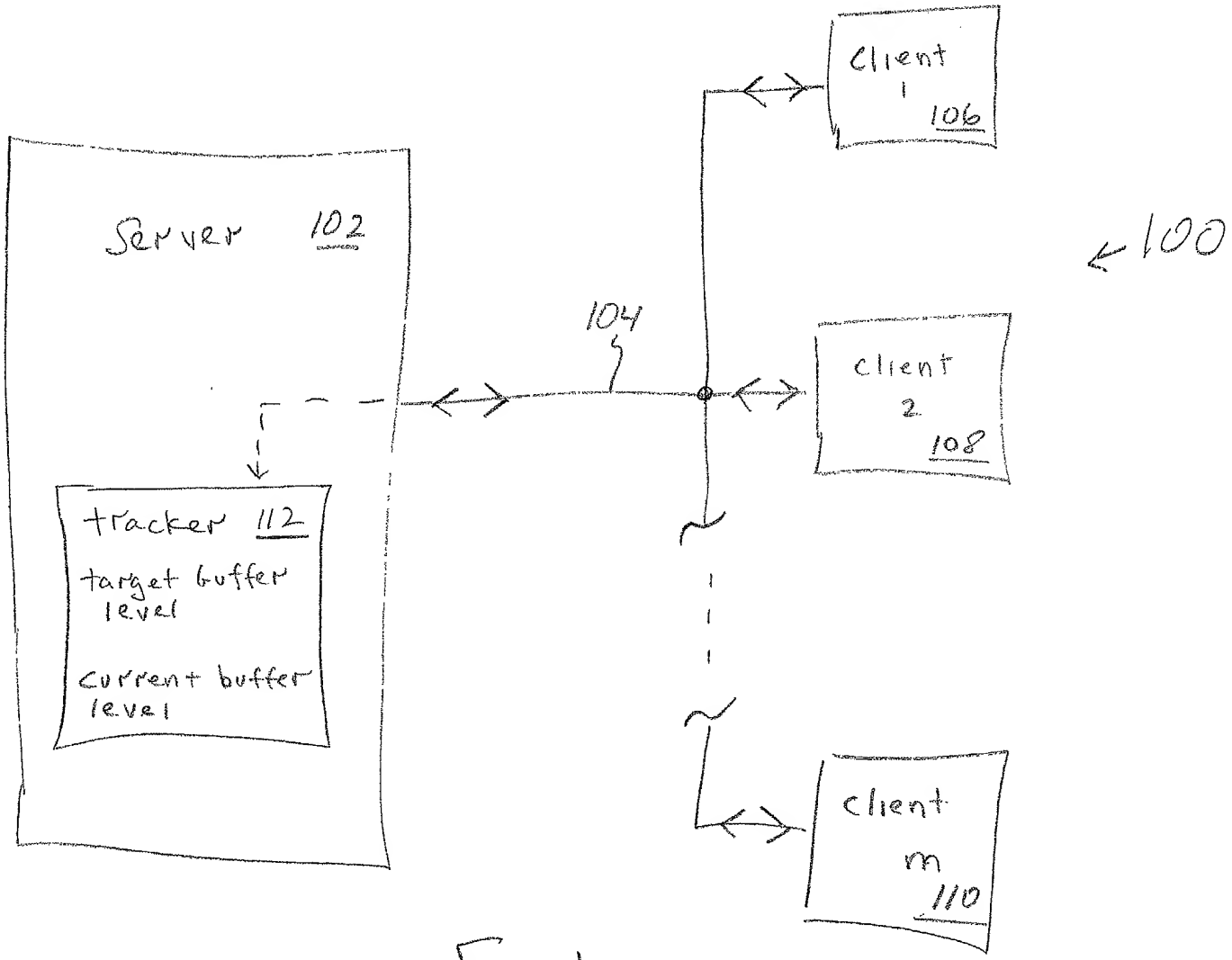

Client 1 106
Server 102
100
104
client 2 108
tracker 112
target buffer level
current buffer level
client m 110

Fig. 1

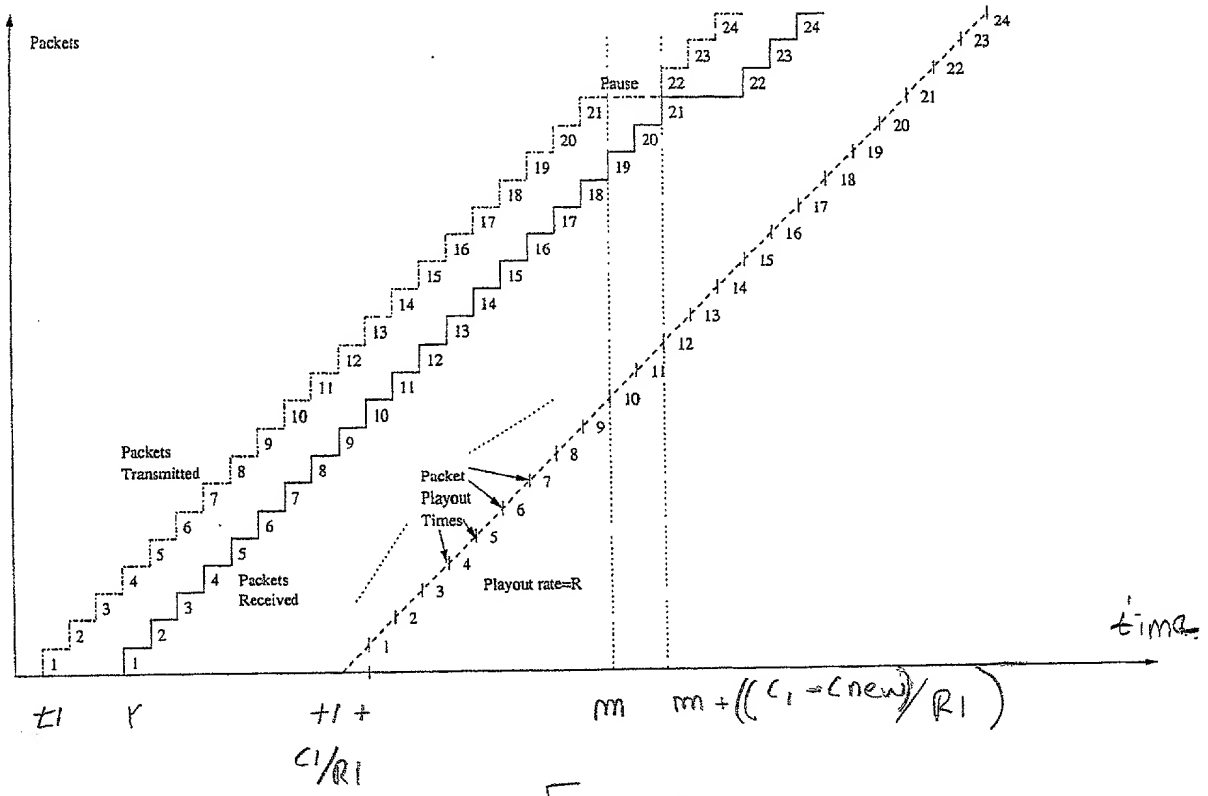

Packets
Pause
Packets Transmitted
Packet Playout Times
Packets Received
Playout rate=R
time
t1
t1 + C1/R1
m
m + ((C1 - Cnew)/R1)

Fig. 2

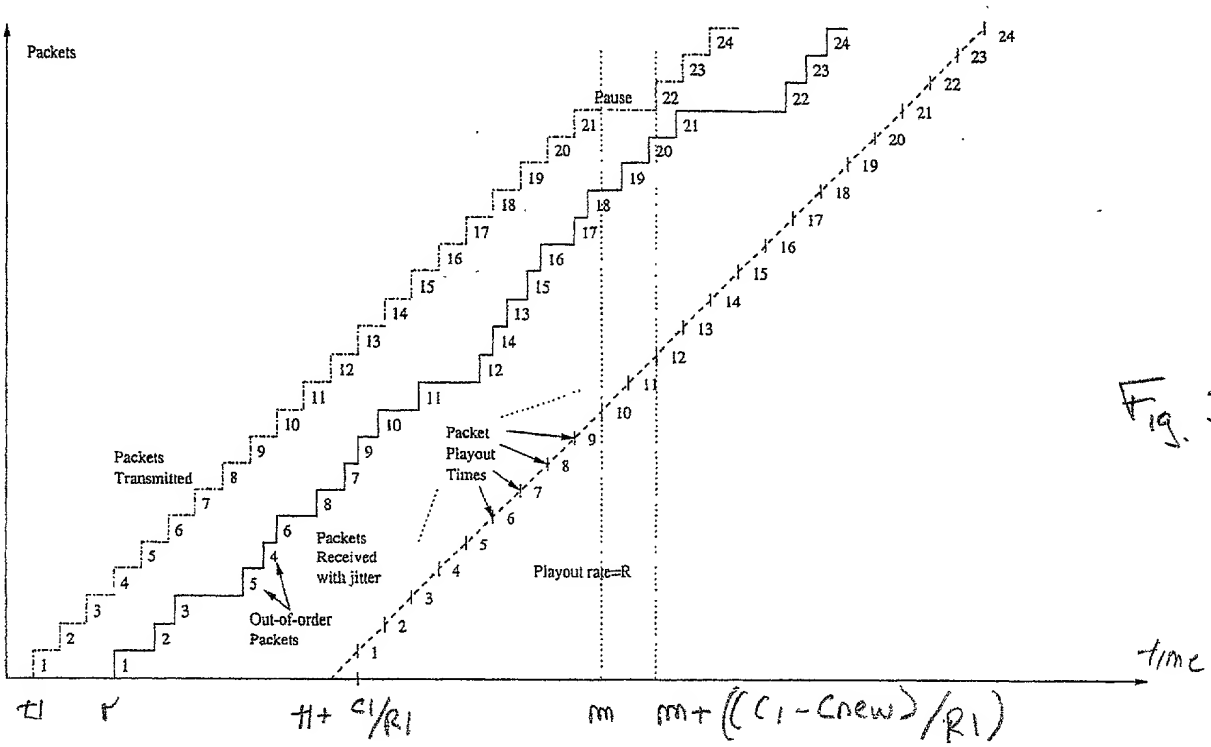

Packets
Pause
Packets Transmitted
Packet Playout Times
Packets Received with jitter
Out-of-order Packets
Playout rate=R
time
t1
t1 + C1/R1
m
m + ((C1 - Cnew)/R1)

Fig. 3

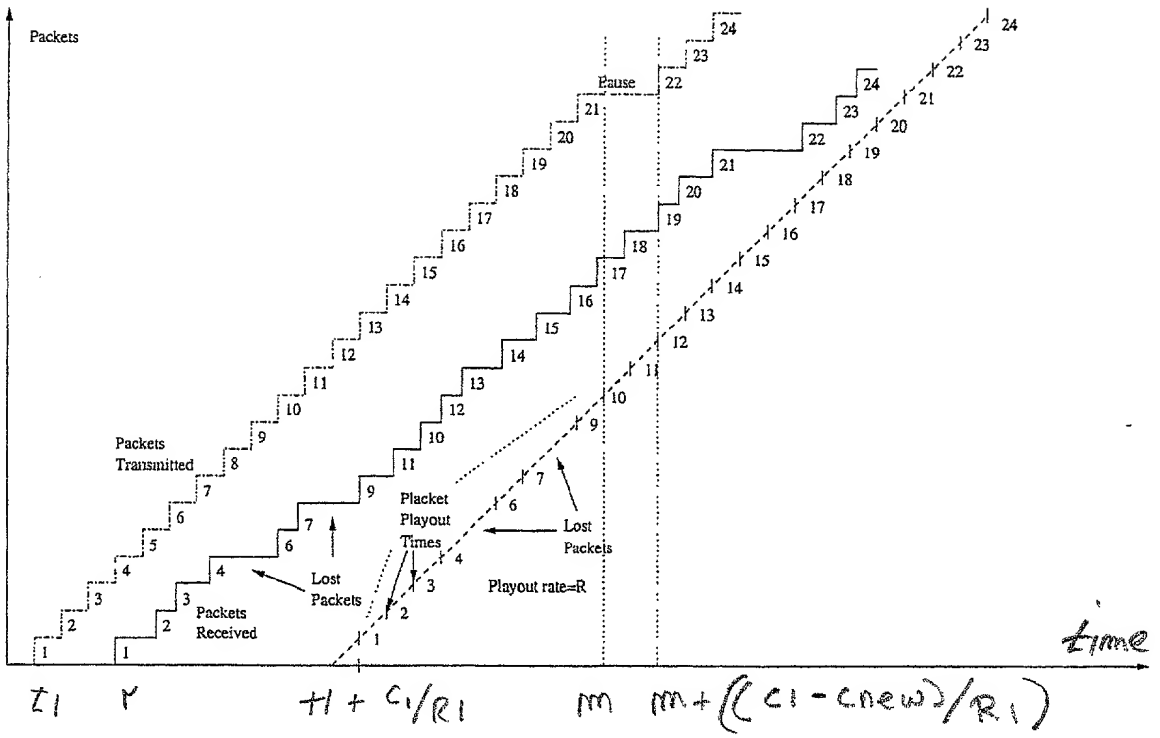

Packets
Pause
Packets Transmitted
Packets Received
Lost Packets
Placket Playout Times
Lost Packets
Playout rate=R
time
t1
r
t1 + c1/R1
m
m+((c1 - cnew)/R1)

Fig. 4

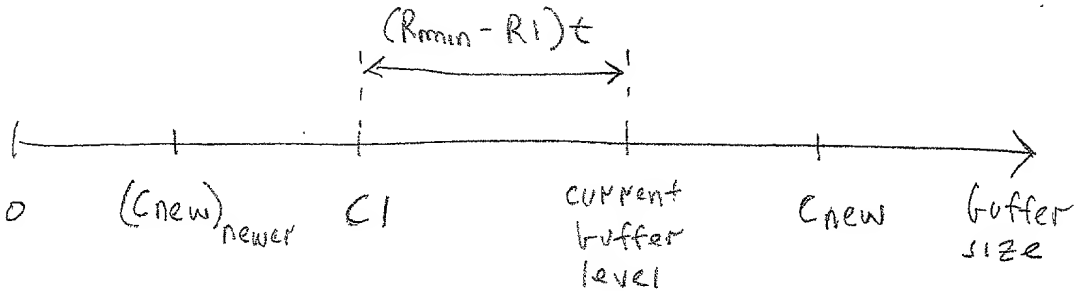


Fig. 5a

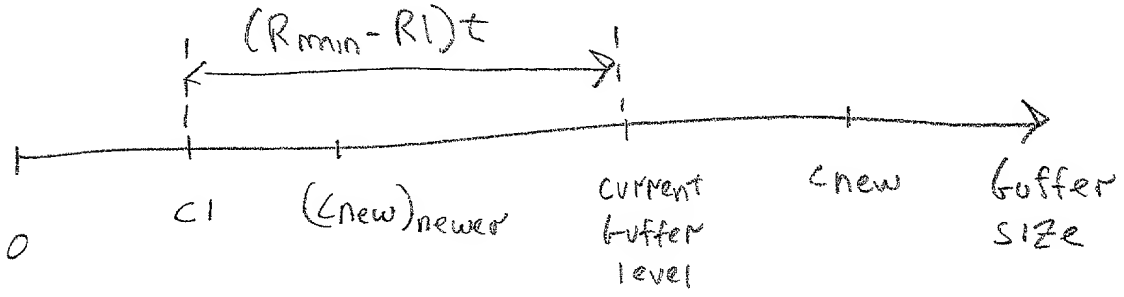


Fig. 5b

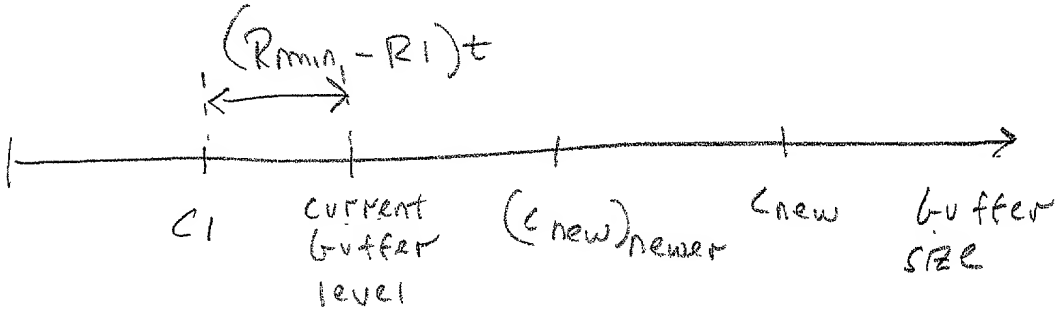


Fig. 5c

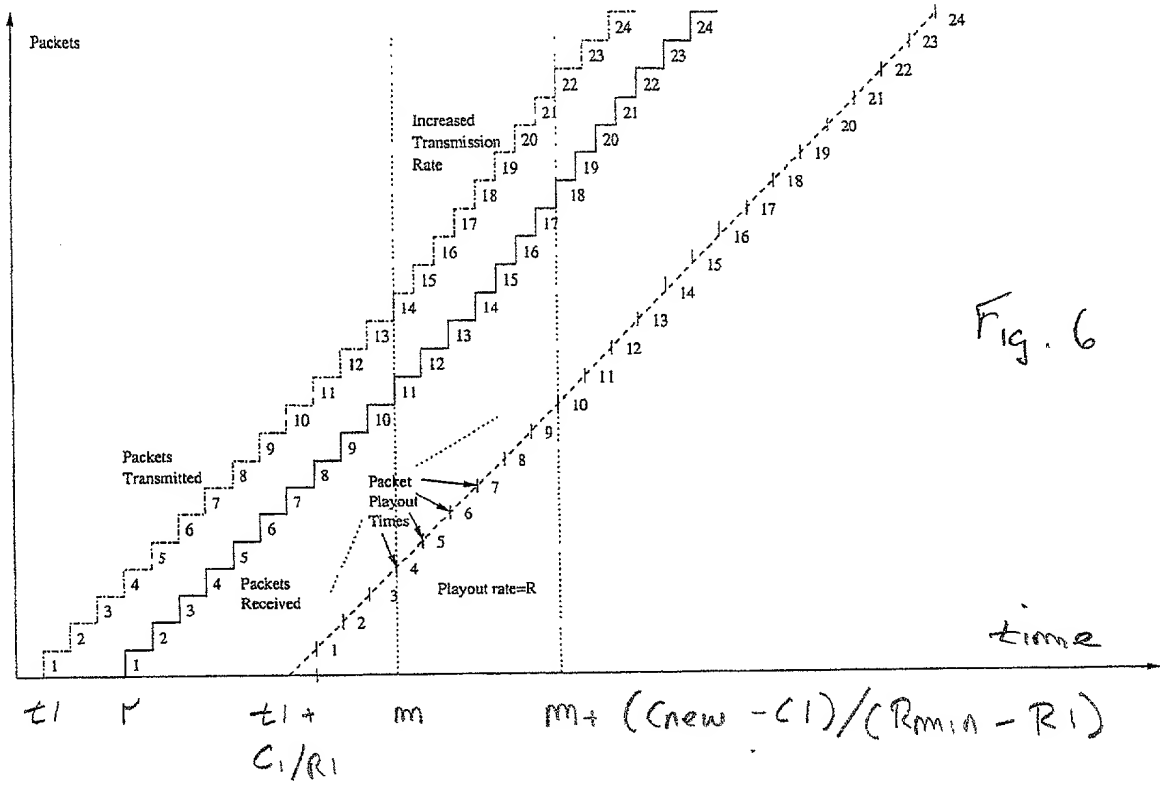

Packets
Increased Transmission Rate
Packets Transmitted
Packet Playout Times
Packets Received
Playout rate=R
time
t1
t1 + C1/R1
m
m + (Cnew - C1)/(Rmin - R1)

Fig. 6

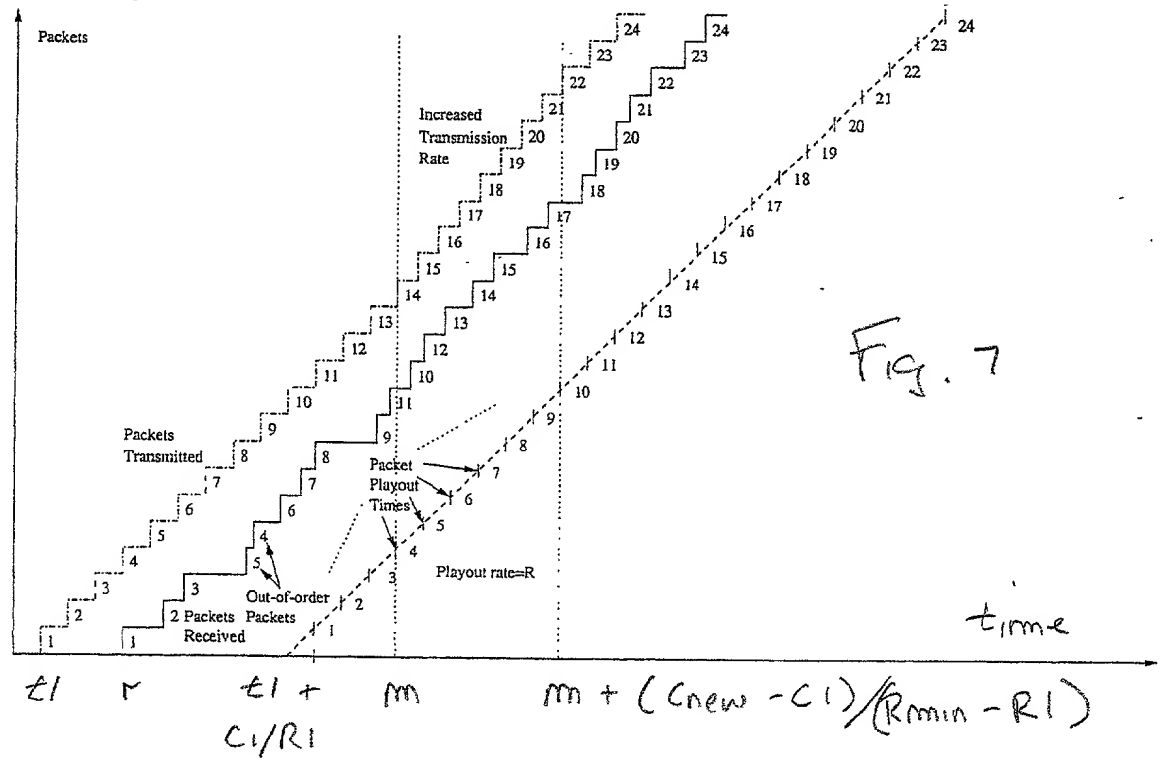

Packets
Increased Transmission Rate
Packets Transmitted
Packet Playout Times
Out-of-order Packets
2 Packets Received
Playout rate=R
time
t1
t1 + C1/R1
m
m + (Cnew - C1)/(Rmin - R1)

Fig. 7

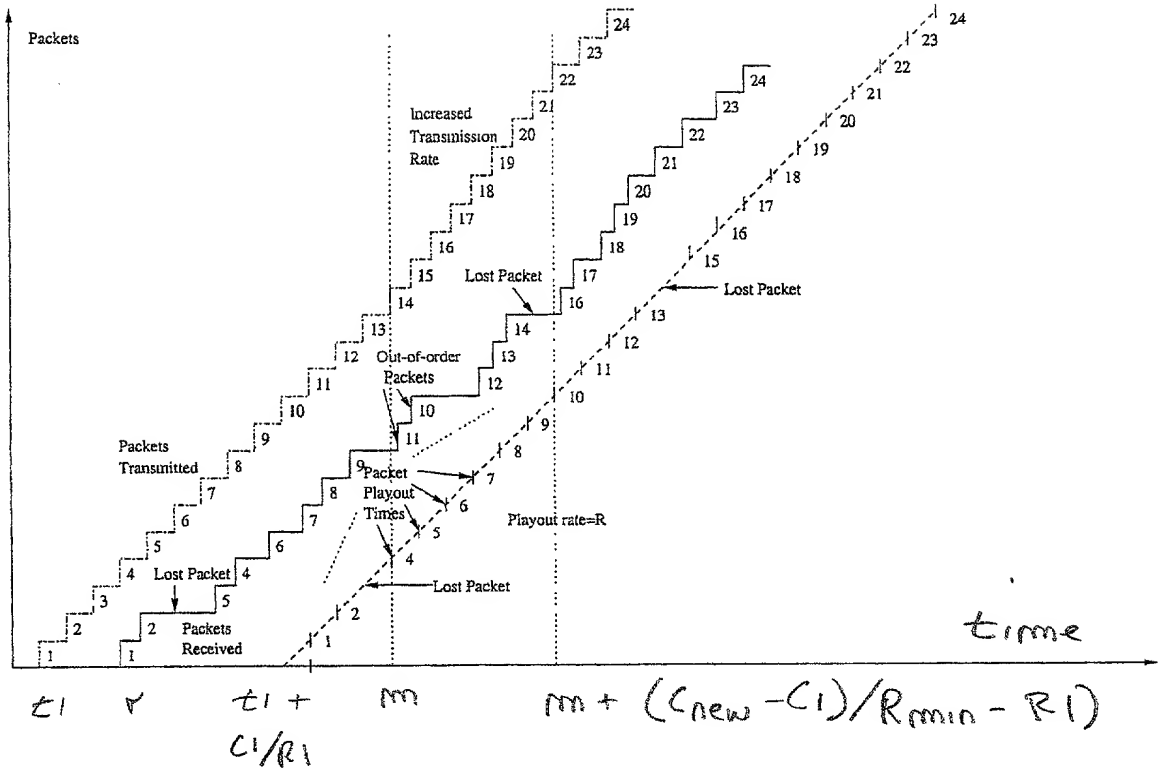
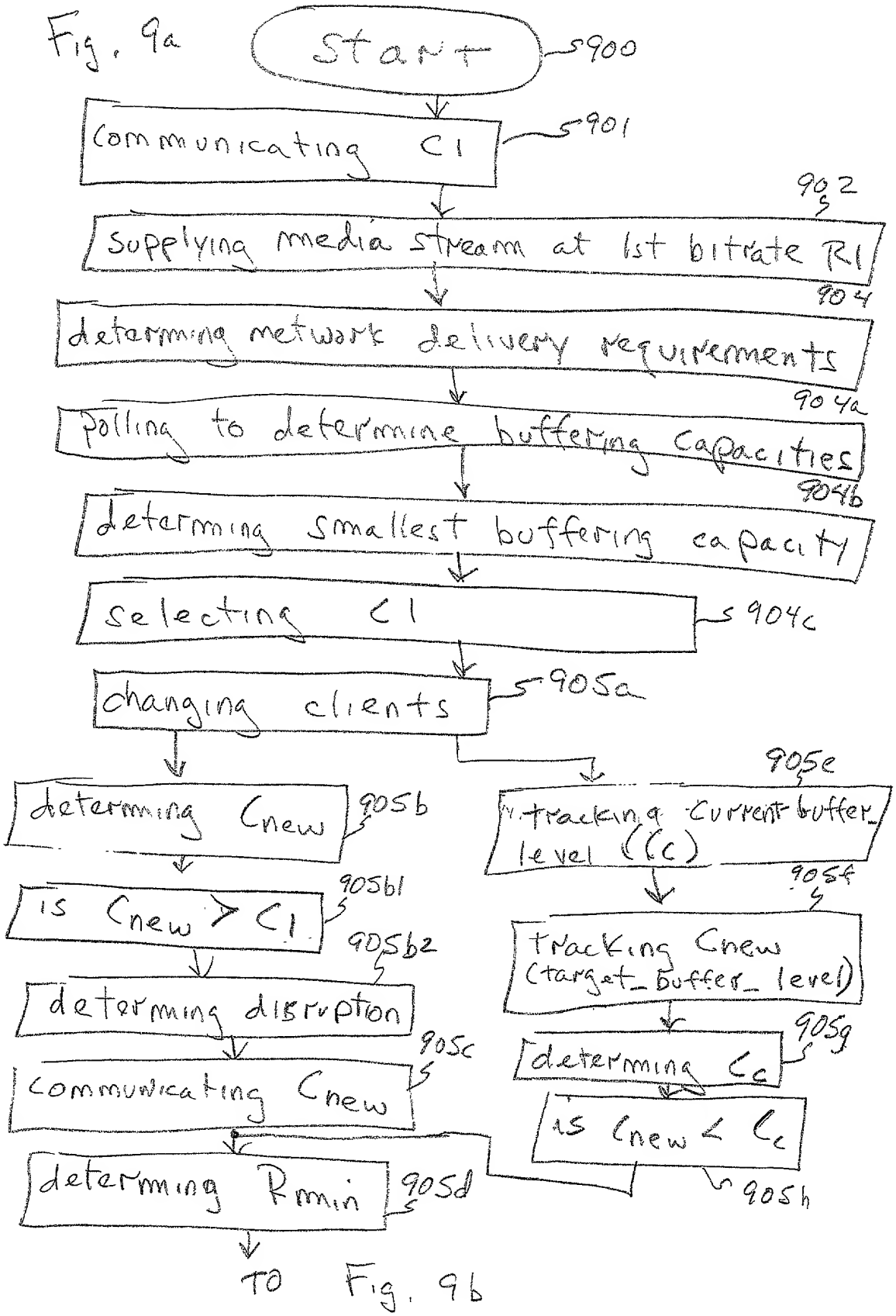

Packets
Increased
Transmission
Rate
Lost Packet
Out-of-order
Packets
Packets
Transmitted
Packet
Playout
Times
Playout rate=R
Lost Packet
Lost Packet
Lost Packet
Packets
Received
time
t1
t1 +
C1/R1
m
m + (Cnew - C1)/Rmin - R1)

Fig. 8

Fig. 9a


Start
900
Communicating C1
901
902
Supplying media stream at 1st bitrate R1
904
determining network delivery requirements
904a
Polling to determine buffering capacities
904b
determining smallest buffering capacity
Selecting C1
904c
changing clients
905a
determining Cnew
905b
905e
tracking current buffer level (Cc)
905b1
Is Cnew > C1
905b2
905f
tracking Cnew (target_buffer_level)
determining disruption
905c
905g
determining Cc
communicating Cnew
Is Cnew < Cc
905h
determining Rmin
905d
TO Fig. 9b

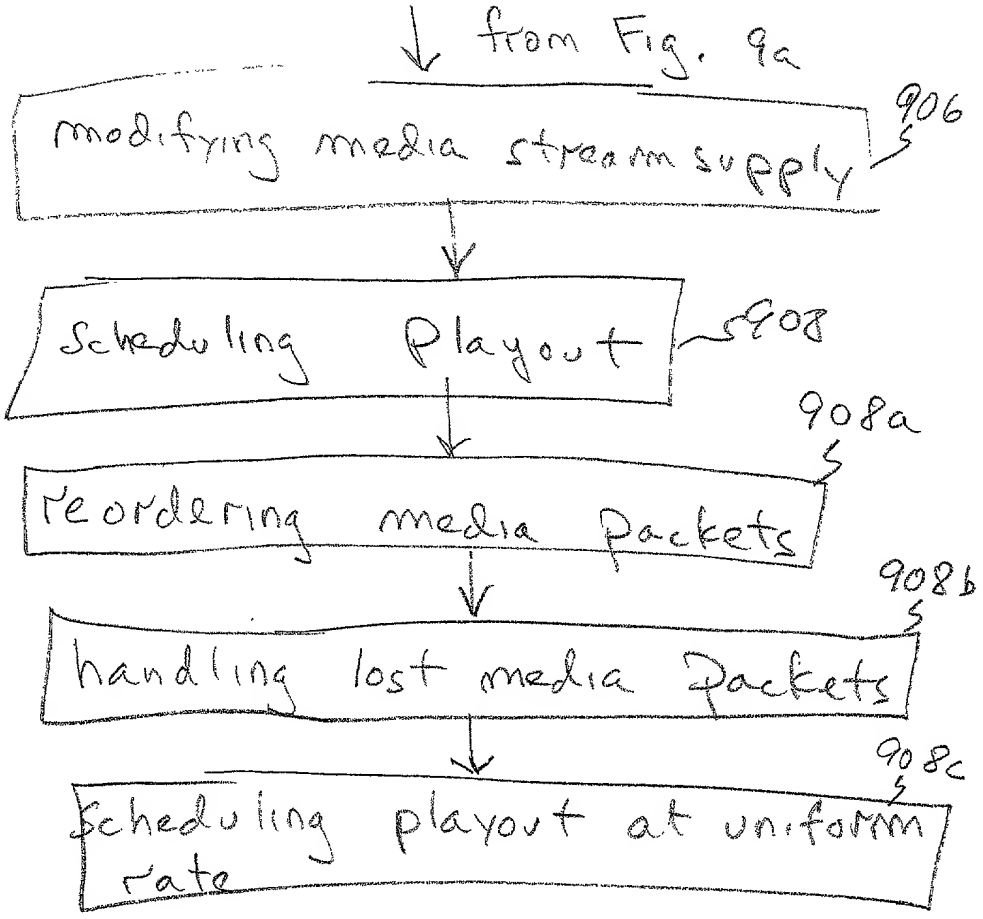

from Fig. 9a
modifying media stream supply
906
scheduling playout
908
908a
reordering media packets
908b
handling lost media packets
908c
scheduling playout at uniform rate

Fig. 9b